

We claim:

1. A portable backpack fluid dispenser operable to dispense fluid, the dispenser comprising:
 - 5 a tank defining a cavity in which fluid is supportable;
 - a pump fluidly connected to the tank and having an inlet and an outlet, wherein fluid is pumpable from the cavity into the pump through the inlet and is pumpable out of the pump through the outlet;
 - 10 a dispensing tube in fluid connection with the outlet of the pump and being operable to pass fluid therethrough; and
 - a conduit defined in the tank and at least partially passing through the cavity, the dispensing tube being at least partially positioned in the conduit.
2. The dispenser of claim 1, wherein the conduit extends through the tank
15 from a front surface of the tank to a rear surface of the tank.
3. The dispenser of claim 2, wherein the dispensing tube is at least partially received in the conduit and extends out of the conduit from the rear surface of the tank.
- 20 4. The dispenser of claim 1, wherein the conduit has a substantially round cross-sectional shape.
5. The dispenser of claim 1, wherein the conduit is shaped to complement the shape of the dispensing tube.
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6. The dispenser of claim 1, wherein the dispensing tube extends from the pump, through the conduit, and away from the tank.
7. The dispenser of claim 1, wherein:
30 the tank defines a receptacle in at least one wall of the tank; and
- the conduit extends from the receptacle to allow the dispensing tube to pass through the tank from the receptacle.

8. The dispenser of claim 1, wherein the conduit extends through a wall of the tank.

9. The dispenser of claim 8, wherein the conduit extends through walls of the
5 tank on opposite sides of the tank.

10 A method of dispensing fluid from a portable backpack fluid dispenser, the method comprising:

providing a tank defining a cavity operable to support fluid therein, the tank
10 having a conduit passing at least partially through the cavity;
fluidly connecting a pump to the tank, the pump having an inlet and an
outlet;

providing a dispensing tube at least partially received within the conduit,
the dispensing tube having an end fluidly connected to the outlet of
15 the pump;

pumping fluid from the tank into the pump through the inlet of the pump;
and

20 pumping fluid out of the pump and into the dispensing tube through the
outlet of the pump.

11. The method of claim 10, further comprising pumping fluid from the tank through the conduit.

12. The method of claim 10, further comprising pumping fluid from the tank
25 through the conduit from a front surface of the tank to a rear surface of the tank.

13. The method of claim 10, wherein the conduit has a cross-sectional shape complementary to a cross-sectional shape of the dispensing tube.

14. A portable backpack fluid dispenser operable to dispense fluid, the dispenser comprising:

a tank operable to support fluid therein;

a bracket connected to the tank;

5 a pump connected to the bracket and including an inlet and an outlet, the pump being operable to pump fluid from the cavity into the inlet and pump fluid out of the pump through the outlet; and

10 a cover selectively connectable to the bracket and being operable to at least partially cover the pump when connected to the bracket.

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15. The dispenser of claim 14, further comprising:

a receptacle in the tank; and

a bracket coupled to the tank within the receptacle.

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16. The dispenser of claim 15, wherein the cover is at least partially covers the receptacle when the cover is connected to the bracket.

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17. The dispenser of claim 14, wherein the bracket includes a first portion mounted to the tank and a second portion extending at an angle with respect to the first portion.

18. The dispenser of claim 17, wherein the pump is mounted to the second portion of the bracket.

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19. The dispenser of claim 17, wherein:

the second portion of the bracket includes a flange extending therefrom; and
the pump is mounted to the flange.

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20. The dispenser of claim 19, wherein:

the flange is integral with the second portion of the bracket; and

the flange is bent out of a plane in which the first portion of the bracket lies.

21. The dispenser of claim 17, wherein the bracket includes a first flange extending from the second portion of the bracket and a second flange extending from the first portion of the bracket, the cover fastened at one end to one of the first and second flanges and retained at another end to another of the first and second flanges.

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22. The dispenser of claim 14, further comprising a conduit extending through the tank from a position adjacent the bracket.

23. The dispenser of claim 14, further comprising a control circuit for
10 controlling operation of the dispenser, the bracket having a flange onto which the control circuit is mounted.

24. The dispenser of claim 11, wherein the flange also supports a user manipulatable control.

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25. A method of assembling a portable backpack fluid dispenser operable to dispense fluid, the method comprising:

providing a tank operable to support fluid therein;
connecting a bracket to the tank;
20 connecting a pump to the bracket, the pump being supportable by the bracket and being operable to pump fluid from the tank; and
connecting a cover to the bracket, the cover being operable to at least partially cover the pump when connected to the bracket.

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26. The method of claim 25, connecting a bracket to the tank includes connecting a bracket to the tank within a receptacle defined within the tank.

27. The method of claim 26, further comprising at least partially covering the receptacle with the cover.

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28. The method of claim 25, wherein connecting the bracket to the tank includes mounting a first portion of the bracket to the tank; the method further comprising mounting the pump to a flange extending from a second portion of the bracket oriented at an angle with respect to the first portion of the tank.

29. The method of claim 25, further comprising forming the first and second portions of the bracket from a single piece of sheet material.

5 30. The method of claim 25, further comprising mounting a control circuit to a flange of the bracket.

10 31. A battery pack for an electrical backpack fluid dispenser, the battery pack selectively connectable to and removable from the dispenser, the battery pack comprising:

a battery operable to provide electrical current to the dispenser to power the dispenser; and
a cover selectively connectable to the battery and operable to support and cover the battery.

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32. The battery pack of claim 31, wherein the battery is selectively connectable to the cover with at least one strap.

20 33. The battery pack of claim 32, wherein the cover includes a strap recess defined therein in which the strap is positionable, the strap recess providing lateral support to resist strap movement with respect to the cover.

34. The battery pack of claim 32, wherein the at least one strap comprises hook and loop fastener material.

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35. The battery pack of claim 31, wherein the battery is removably coupled to the cover with a fastener.

30 36. The battery pack of claim 31, wherein the cover includes a base and a wall extending from the base at an angle with respect to the base, the battery supported on the base.

37. The battery pack of claim 36, wherein the base includes at least one side support extending therefrom and providing lateral support for the battery.

38. The battery pack of claim 31, further comprising an electrical connector coupled to the cover and at least one electrical wire extending from the electrical connector and at least one terminal on the battery.

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39. The battery pack of claim 38, wherein the cover includes an exterior surface defining an exterior surface of the fluid dispenser when installed thereon, the electrical connector externally accessible when the cover is installed on the fluid dispenser.

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40. An electrical backpack fluid dispenser operable to dispense fluid, the dispenser comprising:

a tank operable to support fluid therein and defining an external receptacle therein;
a pump fluidly connected to the tank to pump fluid from the tank; and
a battery pack selectively connectable to and removable from the tank, the battery pack including

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a battery selectively positionable within the receptacle and operable to provide electrical current to the pump to power the pump;
and

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a cover selectively connectable to the battery and operable to at least partially cover the receptacle when the battery is positioned in the receptacle, the battery and cover being selectively connectable to and removable from the tank together.

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41. The dispenser of claim 40, wherein the pump is received within the receptacle.

42. The dispenser of claim 40, wherein the battery is releasably coupled to the cover.

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43. The dispenser of claim 40, further comprising at least one strap releasably coupling the battery to the cover.

44. The dispenser of claim 40, wherein the cover includes a base and an upright wall extending from the base, the battery supported upon the base.

45. The dispenser of claim 44, wherein the base includes at least one side support extending therefrom and providing lateral support for the battery.

5 46. The dispenser of claim 40, further comprising an electrical connector coupled to the base and externally accessible on the dispenser when the cover is mounted on the dispenser.

10 47. A method of assembling an electrical backpack fluid dispenser, the method comprising:

providing a tank operable to retain fluid therein, the tank defining a receptacle;
fluidly coupling a pump to the tank, the pump operable to pump fluid from the tank;

15 releasably coupling a battery to a cover to define a battery pack;
inserting the battery into the receptacle; and
releasably coupling the battery pack to the tank.

20 48. The method of claim 47, further comprising installing the pump within the receptacle.

49. The method of claim 47, wherein releasably coupling the battery includes releasably coupling the battery to the cover with a strap.

25 50. The method of claim 47, wherein the cover is shaped to receive at least a part of the battery.

30 51. The method of claim 47, further comprising covering at least a part of the receptacle with the cover.

52. The method of claim 47, further comprising releasably coupling an electrical connector on the battery pack with a control circuit of the dispenser.

53. The method of claim 52, wherein the electrical connector on the battery pack is coupled to the control circuit from a location external to the dispenser.

54. The method of claim 47, further comprising inserting at least part of the cover into the receptacle.

55. An electrical backpack fluid dispenser operable to dispense fluid, the dispenser comprising:

10 a tank having an internal fluid chamber;
a pump fluidly connected to the tank and operable to pump fluid from the tank;
a battery coupled to the pump to power the pump; and
an externally accessible electrical connector electrically coupled to
the battery, the electrical connector adapted to be releasably coupled
15 to a battery charger to charge the battery.

56. The dispenser of claim 55, wherein the electrical connector is releasably coupled to a pump to provide power from the battery to the pump.

20 57. The dispenser of claim 56, wherein the electrical connector is selectively connectable to one of the pump and the battery charger.

58. The dispenser of claim 55, wherein the tank defines an external receptacle within which the battery and the pump are received.

25 59. The dispenser of claim 55, further comprising a cover coupled to the battery and to which the electrical connector is mounted.

30 60. The dispenser of claim 55, wherein the cover and the battery are removable as a single unit.

61. A method of assembling an electrical backpack fluid dispenser, the method comprising:

providing a tank operable to support fluid therein;

providing a pump;

5 fluidly connecting the pump to the tank to pump fluid from the tank;

providing a battery operable to power the pump;

removably coupling the battery to the tank;

providing an externally accessible electrical connector in electrical communication with the battery for charging the battery; and

10 electrically coupling the electrical connector to the pump.

62. The method of claim 61, further comprising:

disconnecting the pump from the electrical connector; and

electrically connecting a battery charger to the electrical connector to charge the

15 battery.

63. The method of claim 62, wherein disconnecting the pump and electrically connecting a battery charger are performed without removing the battery from the dispenser.

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64. The method of claim 61, further comprising coupling a cover to the battery prior to removably coupling the battery to the tank.

65. The method of claim 64, further comprising:

25 inserting the battery within an external receptacle of the tank; and covering at least part of the external receptacle with the cover.